



Alcimedes

The three positions commonly used for genital examination of girls are the supine separation technique, the supine traction technique and the prone knee-chest position. Researchers in California set out to compare the effectiveness of these three different examination methods in their ability to help the examiner detect both acute and non-acute genital injuries in 46 pre-pubertal and 74 pubertal girls suspected of having been sexually abused (age range 4 months to 18 years). While no single technique detected all the injuries, the use of all three did prove to be a valuable adjunct in the evaluation of both pre-pubertal and pubertal girl's genitalia, particularly in the identification of a hymenal laceration. The authors conclude that, without the combined use of these three methods, a significant number of injuries, particularly hymenal lacerations, could be missed in both the child and the adolescent (Child Abuse Neglect 2008;32:229–43).

In many legislations, blood alcohol concentrations (BACs) at the time of an alleged offence are calculated by forward or back-extrapolation using population based average values for alcohol absorption or elimination rates. This tends to ignore the possibility of inter- or intra-subject variability. A study involving 12 male volunteers who had their BAC measured over time on four separate occasions during a 12-weeks period set out to estimate the extent of inter- and intra-subject variability in the elimination and absorption rates of ethanol (For Sci Int 2008;175:65–72). Forensically significant differences in the intra-subject elimination rate of alcohol were found suggesting that the difference between elimination rates in the same individual calculated on two separate occasions can be expected to be 1.9 mg/100 ml/h in the average individual, or as large as 8.8 mg/100 ml/h for a highly variable individual. Forensically significant variability in ethanol absorption rates were also found both between and within individuals. The authors conclude that neither population based average ethanol pharmacokinetic parameters, nor individual specific parameters obtained from a single controlled drinking experiment, are likely to produce a highly accurate BAC using forward or back-calculations.

Concerns that the growing popularity of online journals or 'blogs' amongst young people may expose them to increased risk of sexual solicitation appear to be unfounded. An American study found that 16% of children aged 10–17 years who use the Internet reported blogging in the previous year. It seems that girls blog more than boys and bloggers are more likely than other young people to post personal information online. However, bloggers are not more likely

to interact with people they meet online who they do not know in person and they are at no increased risk of sexual exploitation than other young people (Child Abuse Neglect 2008;32:229–43). Unfortunately, the story is not all positive as youthful bloggers were at increased risk of online harassment (involving threats or other offensive behaviour sent online to the youth or posted online about the youth for others to see).

In cases of fatal stabbings a question that is often put to the forensic pathologist is "What was the degree of force involved?" This question has become even more pertinent now that stabbing is the most common cause of homicide in the UK. Researchers set out to investigate the mechanics of knife stabbings by developing a biaxial measurement device that they used in conjunction with synthetic materials designed to simulate skin, fat and cartilage (polyurethane, compliant foam and ballistic soap, respectively). Synthetic 'skin' tension was shown to have a direct effect on both the force and energy required for knife penetration and the depth of out of plane displacement of the 'skin' prior to penetration: which is consistent with the observation that, when cutting biological skin, less force is required to cut parallel to the Langer lines than perpendicularly and less force is required to cut when the skin is under a greater level of tension. A somewhat surprising finding of the research was the observation that quality control processes used to manufacture knives fail to produce consistently uniform blade points in knives that are nominally identical. The consequences of this were that the penetration forces associated with apparently identical knives can vary by as much as 100% (For Sci Int 2008;177:52–65).

Commotio cordis describes a syndrome in which young people without previous cardiac anomalies die after receiving a minor blow to the chest that produces ventricular fibrillation and cardiac arrest in the absence of structural damage to the ribs, sternum, or heart. Typically, the individuals are athletes who die whilst engaged in sporting activities, but there are a few reports of commotio cordis associated with violent, non-sports related actions. One such case involved a 20-year-old man who was kicked in the chest during a fight and suddenly collapsed and died despite prompt advanced cardio-respiratory resuscitation (For Sci Int 2008;177:e1–e4). Following detailed medico-legal investigation, the Spanish prosecutors considered the death to be 'imprudent homicide' and the aggressor was sentenced to 4 years in prison.